WOODHAM WALTER C OF E (VC) PRIMARY SCHOOL

EXCELLENCE FOR EVERYONE

Science Policy

Approved by Governors Summer 2018

To Be Reviewed: Spring 2020

This policy outlines guiding principles by which this school will implement Science in the National Curriculum in England or its equivalent in Wales or Northern Ireland in the context of the (Local Authory's governing body's) curriulum statement and its staffing, health and safety and equal opportunities policies. It is reviewed periodically.

RATIONAL

Science is a body of knowledge built up through experimental testing of ideas. It is also a methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. At Woodham Walter Primary School we believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disabilty.

AIMS

Science teaches an understanding of natural phenomena through the disciples of chemistry, physics and biology. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national and global level. Science prepares our children for life in an increasing scientific and technological world.

ATTITUDE

At Woodham Walter we encourage the development of positive attitudes to the subject of science by building on children's natural curiosity and developing a scientific approach to solve problems and questions. We encourage open-mindedness, self-assessment, perseverance and responsibility by building our children's self- confidence to enable them to work independently and develop their social skills to work cooperatively with others. Teachers aim to makescience an enjoyable experience, so that they will develop a deep and lasting interesting and may be motivatedto study science further.

SKILLS

- Develop an understanding of scientific processes.
- Aquire practical scientific skills.
- Develop the skills of investigation- including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Understanding scientific language
- Developing recording techniques.
- Develop the use of ICT in investigating and recording.
- Become an effective communicator of scientific ideas, facts and data.

Science is a core subject in the National Curriculum for England, Wales and Norhern Ireland.

In England, it has four attainment targets and a statement of breadth of study,

These are:

Sc1 Scientific Enquiry;

Sc2 Life and living processes;

Sc3 Materials and their properties;

Sc4 Physical processes.

Our role is to teach scientific enquiry through the context of the three main context areas. The breadth of study statement in National Curriculum is concerned with issues such as the use of Computing, scientific language and health and safety.

Children in the foundation stage- Class 1 are taught the science elements of the foundation stage document through the Early- Learning Curriculum: Knowledge and Understanding of the world.

PRINCIPLES OF GOOD/ EXCELLENT SCIENCE TEACHING

- Children's curiosity is encouraged and valued; they are excited and enthusiastic when anticipating in their science lessons.
- Science is practical and hands on and children enjoy learning throgh hands on exploration and questioning; they have the opportunity to use good quality resources.
- Enrichment events/school visits/science workshops happen regularly.
- Progression of scientific skills is evident in planning and book scrutinies throughout the school.
- Children confidently use scientific vocabularly in context.
- Teachers use different assessment strategies in science lessons.
- All pupils are actively engaged in scientific enquiry; using a variety of enquiry strategies, independently making decisions and answering questions.
- Teachers plan cross curricular lessons linked to technology, engineering and maths.
- Teachers actively reinforce whole school Non-negotables in science e.g. good presentation.

TEACHING AND LEARNING

At Woodham Walter we use a variety of teaching and learning styles in science lessons. Our principle aim is to develop children's knowledge, skills and understanding of scientific concepts. Sometimes we do this through whole-class teaching, while at other times we engage children through enquiry based activies and research activies. We encourage children to ask and answer their own scientific questions. They use Computing where appropriate to enhance their learning and have the opportunity to collect, record and analyse data, statistics, make graphs and tables, as well as taking photo's and labelling diagrams. They take part in role-play and discussions, they present reports to other children, parents and guardians. They engage in a wide variety of problem solving activities. Where ever possible we engage the children in real scientific activities in the local area, practical science enquiries and through STEM (Science, Technology, Engineering, Maths) lessons. We recognise that in all classes children have a wide range of different scientific abilities, and we ensure

that we provide suitable learning opportunities for all children matching the challenge of the task to the ability of the child.

Teachers set tasks which are open-ended and can have a variety of responses or set tasks of increasing difficulty through the use of extension or high order thinking questions – linked to Blooms Taxonomy. Teachers can provide resources of different complexity matched to the ability of the child or use classroom assistants to support the work of individual children or groups of children. Lesson are evaluated by class teachers and this is used to inform future teaching and learning (this does not need to be in a written format). Key Stage 2 plan for 1 to 2 hours of science per week (or an equivalent number of hours in blocks); Key Stage 1 plan for 1 hours of science per week. We combine scientific study with work in other subject areas where possible. (Cross-curricular links.)

Computing should be integrated into planning when possible. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into our lessons.

STRUCTURE OF SCIENCE IN OUR SCHOOL

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of the National Curriculum and Science in the Foundation Stage. The Units of study are shared over a two year rolling programme A and B. Science teaching in the school is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances of our school.

Woodham Walter Primary School follows the National Curriculum Science framework. Teachers use a variety of schemes of work and lesson plans for each unit. It is the teachers responsibilty to cover all areas of the units and the leaders role to monitor coverage.

Teachers are expected to adapt and modify their planning to suit their children's ability, teaching styles, use of any support staff, resources , interests, current events and topic areas.

Generally one scientific unit is taught in each term. Some units may have been moved between years, or amalgamated, where appropriate because of the mixed age classes in our school. Some units are ongoing through out the year e.g. changes in the weather and specific trees through out the seasons.

Units on Life and Living Processes are commonly taught in the spring and summer terms. Some units maybe taught linked to other curriculum areas or topic areas. Children complete at least one full enquiry each term in KS1 and KS2, taking increasing responsibilty for planning, carrying them out and recording/interpreting results. Teachers may use homework to support science and class activities and a Science club is run in the Summer Term.

Foundation Stage

At this phase children are:

- Developing the crucial knowledge, skills and understanding that help them make sense of the world;
- Involved in activities based on first-hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking and decision-making and discussion;

- Experiencing a wide range of activities, indoors and outdoors, including adult focused, child-initiated and independent play;
- Observed by adults and learning is recorded in a variety of ways.

Key Stage 1 and 2

At this phase children are:

- Learning through a science process skill-based approach;
- Undertaking practical enquiries;
- Working collaboratively and independently;
- Developing high quality, purposeful talk for science;
- Recording findings in a variety of stimulating and purposeful ways;
- Building upon prior science learning, both skill and knowledge based;
- Beginning to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts;
- Evaluating their own science learning;
- Using Computing to support and extend their learning in science;
- Making links across subjects;
- Experiencing a variety of teaching styles and strategies that promote positive science learning;
- Learning that science promotes the concept of positive citizenship;
- Learning through science, to raise social and moral questions, to understand differences between people and to have respect for others including those with disabilities.

EQUAL OPPORTUNITIES and INCLUSION

Science is taught within the guidelines of the school's equal-opportunities policy. We ensure that all our children have the opportunity to gain science knowledge and understanding regarless of gender, race, class, physical or intellectual ability. Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.

At Woodham Walter School we value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.

In our teaching, science is closely linked with literacy and mathematics. We recognise the particular importance of first-hand experience for motivating children with learning difficulties. Children with learning difficulties may record their predictions, methods, results or conclusions through video, scribe, drawing or simplified written work. Science may strongly engage our highly able children, and we aim to challenge and extend their learning through questioning, individual research enquiry and use of technology. At Woodham Walter Primary creativity is actively encouraged by using challeging questions and encouraging original thinking e.g. test different materials to make a suitable raft. Design a raft to hold a passenger draw and label the design.

INCLUSION

Our inclusive approach and differentiation allows all children to learn regardless of race, gender, faith, culture or disability. We select and use resources that positively reflect all of the above. Planning and teaching and learning in science set high expectations for all children. Science

provides opportunities for all children to achieve including, boys and girls, children with SEN, children with disabilities, children who are highly able, children from all social and cultural backgrounds, children from different ethnic groups including travellers, refugees, asylum seekers and those from diverse linguistic backgrounds. Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science. Teachers will use a variety of teaching styles and strategies to meet the needs of all children in their science learning.

ASSESSMENT AND RECORDING

Assessment for science is carried out in line with the school policy. Science assessments are carried out using both summative and formative assessment procedures. Formative assessments are made through observations in lessons. Summative assessment takes place at the end of each unit of work. At Woodham Walter Primary we use assessment to inform and develop our teaching. Teachers commonly begin with an assessment of what children already know by questioning or topic webs.

During each unit teachers assess for learning (AFL) and record these either on plannng or in their own assessment books and record comments in children's science books. Most of the science work is continually assessed informally by teachers and teaching staff. Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. Teachers mark each piece of work positively, making it clear where the work is good and next steps are used on pieces to explain how it could be further improved.

At the end of each unit teachers use the Mini SATs papers to test childrens understanding, level children and give a standardised score. Once a term sample books are moderated together with other staff to ensure that our levelling and marking is consistent. Target tracker records are updated half termly and are reviewed annually.

Children who are not succeeding, and children who demonstrate high ability in science, are identified and supported. Any areas where extra remedial work is needed is identified by the teacher through assessment and is worked on in lessons.

Year two and year six use the interim assessment framework and governments exemplars of work to assess children's level of attainment for the end of the year results. The teachers assessment is based on assessment records and work samples.

Reports to parents are written three times a year, describing each child's attitude to science, his/her progress in scientific enquiry and understanding of the content of science.

Science targets are available for each unit of study on the staff pool and progress in difficulty through I can statements. Teachers can also use Literacy targets in science.

PROMOTING SCIENCE

School visits for science are organised; where possible in line with the current unit of work, to enhance and extend learning. Each year the school participates in either a Science or STEM day, science exhibition or a combined classes investigation. Science displays in classrooms and around the school will celebrate children's work, show evidence of progression, learning objectives, success criteria and questions to stimulate thinking.

MONITORING

Monitoring for science is carried out by the co-ordinator in line with the school monitoring policy. At Woodham Water we carry out book and planning scutinies, lesson observation, classroom display monitoring, questionnaires of teachers and pupils on a termly rotation. Best practice for science is identified and shared amongst practitioners. Samples of children's work will be collected for the co-ordinators file and shared with teachers.

RESOURCES

All resources are stored centrally in the science cupboard in the corridor area. Resources are organised in labelled trays. Consumable, generic and large resources are stored separately within the cupboard or in the hall cupboard. Staff are responsible for informing the Science coordinator, when extra resources are needed, when there are breakages and when consumables are running low. The Science Coordinator will update and replenish resources when needed.

OUTSIDE AREAS

At Woodham Walter Primary we have a designated STEM area including a small pond and vegetable plots. This area has been produced to encourage exporation in Science, Technology, Engineering and Maths. The area is used with adult supervision for specific lesson times.

At Keystage one children visit a local woodland area and notice/discuss the changes in seasons or weather. The children learn about different woodland creatures and plants/trees in the area as well as developing a curiosity, love and respect for nature.

HEALTH AND SAFETY

Health and safety is in line with the guidance provided in the Health and safety policy. The safe use of equipment and chemicals is to be promoted at all times. Risk Assessment should be included on plans to cater for allergies and disabled children when appropriate.